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### Title

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# Association between dietary protein and energy intake, handgrip strength (HGS), and lean body mass (LBM) in hypoalbuminemic maintenance hemodialysis (MHD) patients

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## Abstract

### BACKGROUND

Protein energy wasting/malnutrition is a significant problem in MHD patients. More LBM and greater HGS are associated with better survival rates in MHD patients. These associations are not well described in hypoalbuminemic MHD patients who have increased morbidity and mortality.

### METHODS

Hypoalbuminemic (albumin <4.0 g/dL) MHD patients from DaVita Dialysis Centers in Los Angeles were enrolled in a randomized, controlled study (FREDI) associating meals during dialysis, phosphorus control and nutritional status. A dietitian measured HGS, assessed LBM by dual-energy x-ray absorptiometry, and protein and energy intake by interview-assisted three-day food record.

### RESULTS

The baseline association between protein and energy intake, HGS, and LBM was assessed in 65 (28 male, 37 female) MHD patients, including 33 Hispanics and 32 Non-Hispanics with a mean ( $\pm$  SD) age of 56 ( $\pm$ 13) years.

Body Mass (kg)	LBM (%)	Seum Albumin (g/dL)	HGS-right hand (kg)	Protein Intake (g/day)	Energy Intake (kcal/day)
75.4 ( $\pm$ 16.6)	68.9 ( $\pm$ 8.5)	3.71 ( $\pm$ .27)	24.0 ( $\pm$ 8.7)	73.5 ( $\pm$ 31.3)	1573 ( $\pm$ 705)

- Protein intake ( $r=0.38$ ,  $p=.002$ ), energy intake ( $r=0.45$ ,  $p<.001$ ) and HGS ( $r=0.43$ ,  $p<.001$ ) were positively correlated with percent LBM.

### CONCLUSIONS

These findings suggest that even in hypoalbuminemic MHD patients, protein and energy intake is associated with better nutritional status assessed by HGS and LBM.

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